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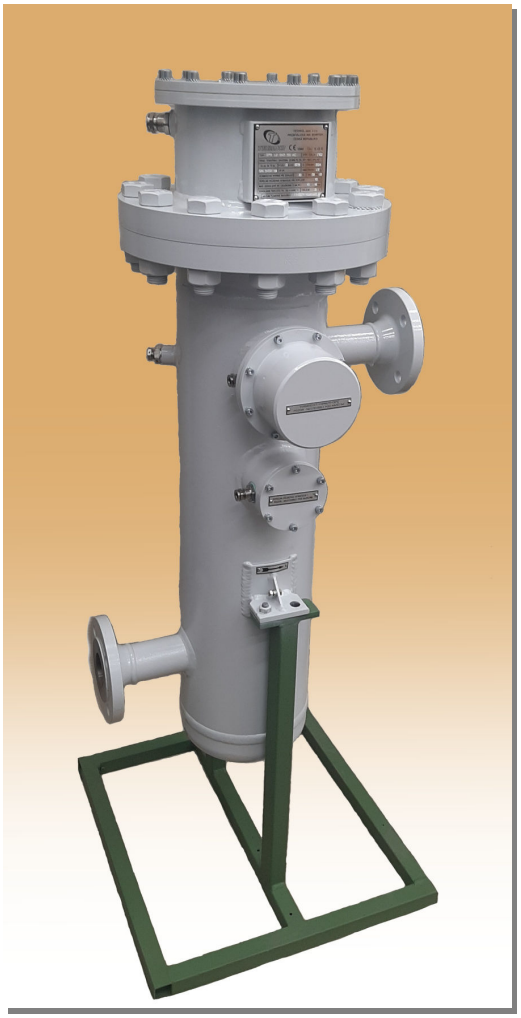
ELECTRIC GAS PREHEATER type EPA

7/2024

1. APPLICATION



The electric gas preheater is designed for heating natural gas (with a high methane content and hydrogen content of up to 25% by volume) in technological equipment, for example gas pressure regulating stations according to EN 12186.
The working fluid can be natural gas, natural gas and hydrogen mixture (H2 content is limited to 25% [volume]). Direct contact between gas and heating rods causes heat transmission.
The preheater meets the technical requirements for gas-preheating equipment according to EN 12186.
The design of the preheater meets the provisions of EN IEC 60079-0 ed.5 and EN 60079-1 ed.3.
The electric preheater is equipment group IIA acc. to EN IEC 60079-0 ed.5 and the preheater is intended for working in potentially explosive atmospheres, Zone 2 acc. to EN IEC 60079-10-1 ed.3. The preheater is certified by notified body acc. to Directive 2014/34/EU (ATEX).
The electric preheater is pressure equipment within the meaning of Directive 2014/68/EU and the preheater is certified by a notified body. The design calculation is according to EN 13445.

2. DESCRIPTION

The preheater consists of a tubular body equipped with flange branches for gas inlet and outlet.
The upper part of the preheater forms a flameproof enclosure for the electrical terminal board (protection type “db”). Resistance heating rods are fixed and sealed in the lower cover of the flameproof enclosure, and the rods extend into the tubular body.
Parts on the preheater body:
1. welded-on piece with a pocket for placing the thermostat in a flameproof enclosure (protection type “db”),
2. surface temperature circuit- breaker formed by a thermal fuse in a cover with protection type "db",
3. welded-on piece for a pocket for an indicating thermometer or temperature sensor Pt100.
Disconnection of heating rods from the supply by a thermostat or thermal fuse must be done indirectly using a protective electrical device which is not part of the preheater.
Such a device must be independent of a system that serves for preheater temperature regulation.

Technical parameters	EPA 06			EPA 12		EPA 18		
Electric input	6 kW			12 kW		18 kW		
Supply voltage/current	3 x 400 V / 9 A			3 x 400 V / 18 A		3 x 400 V / 27 A		
Specific marking of the preheater	Ex II -/3 G Ex db IIA T3 Gc							
Degree of protection	IP 54							
Working environment	Zone 2 according to EN IEC 60079-10-1 ed.3							
Calculation temperature	+ 200 °C							
Working temperature of wall	- 20 to + 50 °C							
Ambient temperature range	- 20 to + 50 °C							
Nominal gas pressure PN	40	63	100	40	63	40	63	100
Max. allowable pressure	40 bar	63 bar	100 bar	40 bar	63 bar	40 bar	63 bar	100 bar

Technical parameters		EPA 06					EPA 12				EPA 18					
Electric input		6 kW					12 kW				18 kW					
Nominal gas pressure PN		40		63		100	40		63		40		63		100	
Inlet and outlet flange		DN 25	DN 50	DN 25	DN 50	DN 25	DN 50	DN 80	DN 25	DN 50	DN 50	DN 80	DN 25	DN 50	DN 25	DN 50
Max. gas flow * for v_{max}= 35 m/s		50 m^3/h	220 m^3/h	45 m^3/h	190 m^3/h	45 m^3/h	220 m^3/h	520 m^3/h	45 m^3/h	190 m^3/h	220 m^3/h	520 m^3/h	45 m^3/h	190 m^3/h	45 m^3/h	190 m^3/h
Weight (acc.to version)		~ 80 kg	~ 85 kg	~ 105 kg	~ 110 kg	~ 170 kg	~ 130 kg	~ 135 kg	~180 kg	~185 kg	~ 190 kg	~ 195 kg	~ 245 kg	~ 250 kg	~ 390 kg	~ 395 kg
Terminal board	Flameproof enclosure of terminal board	Ex db IIA T3														
	Ø supply cable	10 ÷ 16 mm														
Thermostat	Max. capacity o thermostat contacts	250 V / 15 A ~														
	Flameproof enclosure of thermostat	Ex db IIA T3														
	Fixed setting of thermostat switching off temperature depending on PN	30 °C for PN 40		50 °C for PN 63 and PN 100			30 °C for PN 40		50 °C for PN 63		30 °C for PN 40		50 °C for PN 63 and PN 100			
	Ø thermostat supply cable	4,5 ÷ 8,5 mm														
Fuse	Fuse nominal voltage/current	250 V / 10 A ~														
	Thermal fuse - Ex	Ex db IIA T3														
	Nominal releasing temperature of fuse	93 °C														
	Ø fuse supply cable	4,5 ÷ 8,5 mm														

* it is recommended v_{max}= 20 ÷ 25 m/s

The type number is determined as follows:

EPA 06 040 50 A C

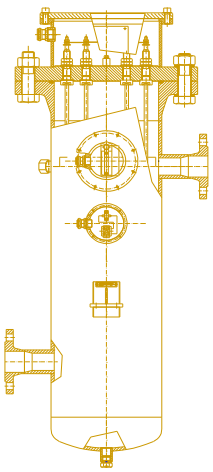
Flanges:
A - flanges ANSI B16.5 / 600 lbs / RF
B - flanges ANSI B16.5 / 300 lbs / RF
C - flanges 1092-1: PN 40 – sealing rod type B1
PN 63, PN 100 – sealing rod type B2

Version:
A - direct, left inlet, right outlet
B - direct, right inlet, left outlet
C - inlet from below, right outlet
D - inlet from below, left outlet
E - inlet from behind, right outlet
F - inlet from behind, left outlet
G – direct, left inlet, left outlet
H – direct, right inlet, right outlet
J – angular, left inlet, outlet to the back
K – angular, right inlet, outlet to the back

Inlet and outlet flange:
25 - DN 25
50 - DN 50
80 - DN 80

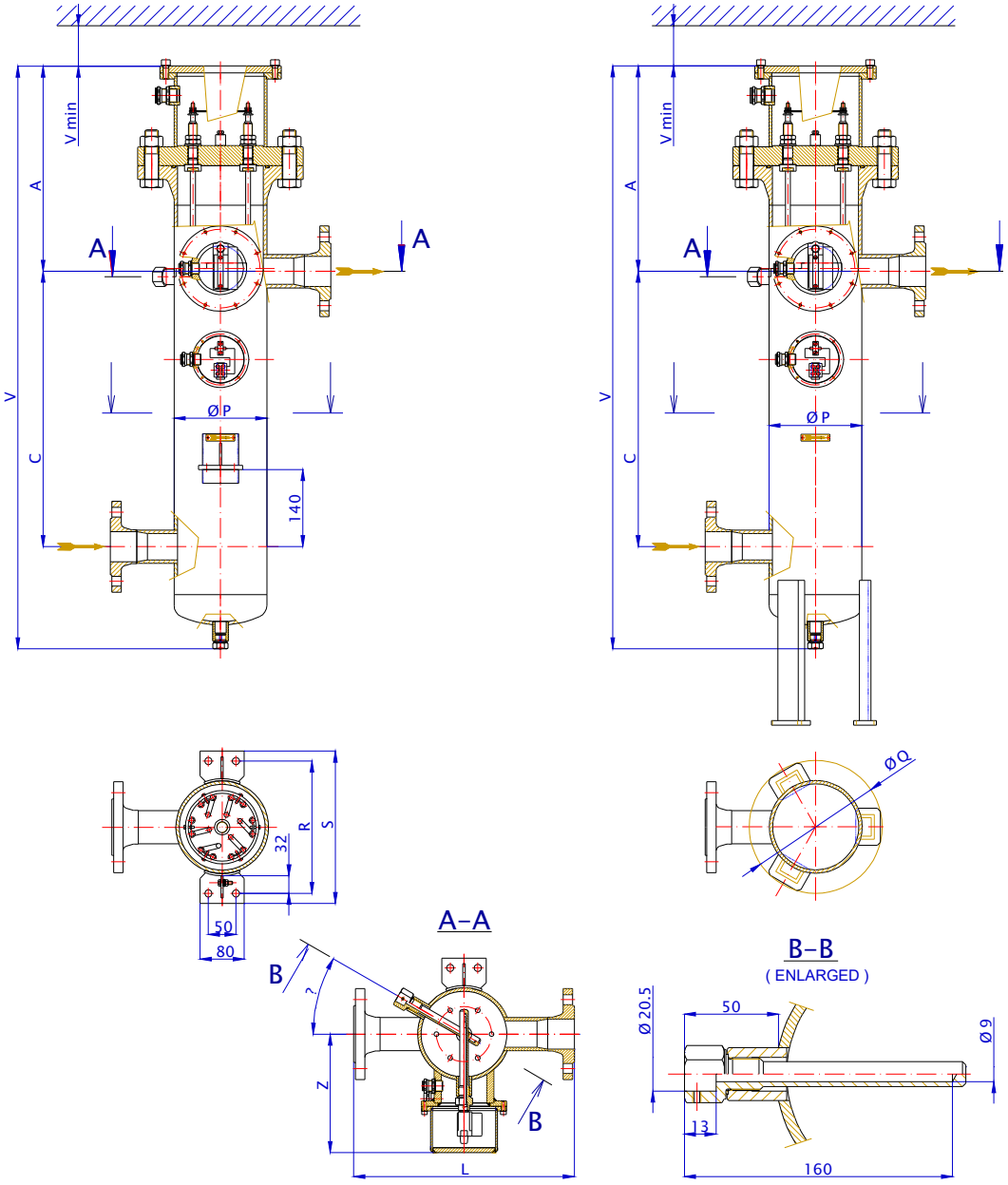
Nominal gas pressure:
040 - PN 40
063 - PN 63
100 - PN 100

Installed electric input:
06 – installed electric input 6 kW
12 – installed electric input 12 kW
18 – installed electric input 18 kW



VERSION: EPA 06 xxx xxxx
EPA 12 xxx xxxx
EPA 18 040 xxxx
EPA 18 063 xxxx

VERSION: EPA 18 100 xxxx

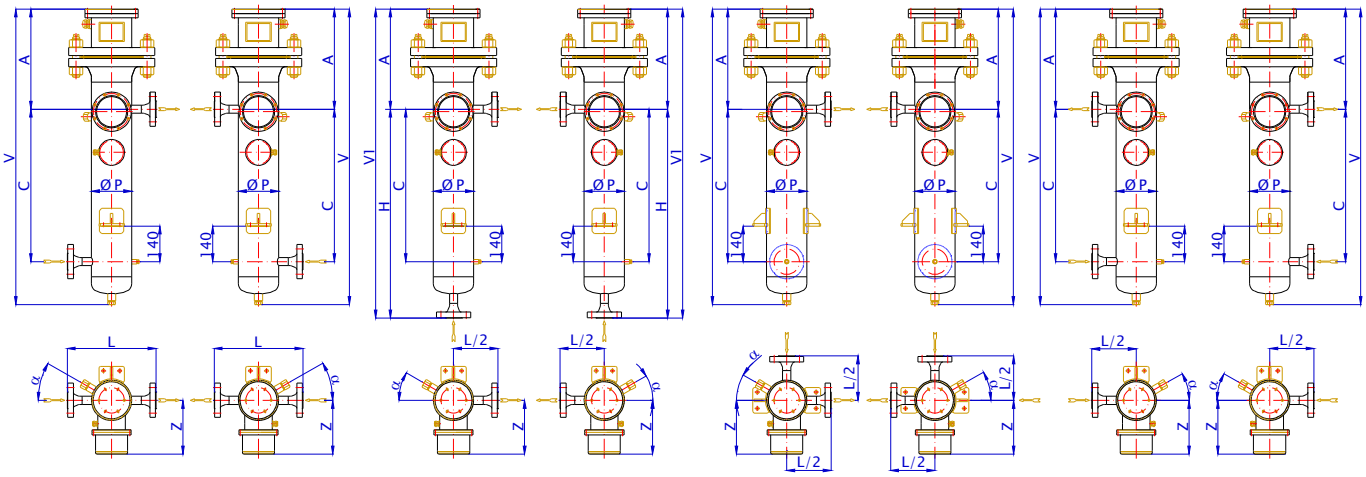


Dimensions of basic type EPA 06, EPA 12 and EPA 18 for pressure PN 40

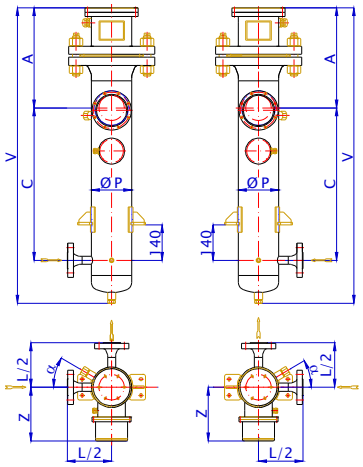
VERSION	DN	PN	A	C	G	H	L	øP	øQ	R	S	α	V	V_1	Vmin	Vdem	Z
EPA 06 040 25 _ C	25	40	375	500	-	750	350	168	-	240	276	30°	1060	1125	400	880	215
EPA 06 040 50 _ C	50	40	375	500	-	750	400	168	-	240	276	30°	1060	1125	400	880	215
EPA 06 040 25 _ A	1"	40	375	500	-	750	400	168	-	240	276	30°	1060	1125	400	880	215
EPA 06 040 50 _ A	2"	40	375	500	-	750	450	168	-	240	276	30°	1060	1125	400	880	215
EPA 12 040 50 _ C	50	40	380	500	-	800	500	219	-	294	330	30°	1125	1180	400	880	240
EPA 12 040 80 _ C	80	40	380	500	-	800	500	219	-	294	330	30°	1125	1180	400	880	240
EPA 12 040 50 _ A	2"	40	380	500	-	850	500	219	-	294	330	30°	1125	1230	400	880	240
EPA 12 040 80 _ A	3"	40	380	500	-	850	500	219	-	294	330	30°	1125	1230	400	880	240
EPA 18 040 50 _ C	50	40	410	500	-	800	500	273	-	350	386	30°	1180	1210	400	880	270
EPA 18 040 80 _ C	80	40	410	500	-	800	500	273	-	350	386	30°	1180	1210	400	880	270
EPA 18 040 50 _ A	2"	40	410	500	-	850	550	273	-	350	386	30°	1180	1260	400	880	270
EPA 18 040 80 _ A	3"	40	410	500	-	850	550	273	-	350	386	30°	1180	1260	400	880	270

VERSION

EPAxx xxx xxAx EPAxx xxx xxBx EPAxx xxx xxCx EPAxx xxx xxDx EPAxx xxx xxEx EPAxx xxx xxFx EPAxx xxx xxGx EPAxx xxx xxHx

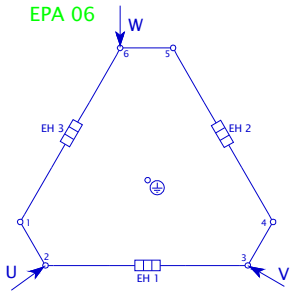


EPAxx xxx xxJx EPAxx xxx xxKx

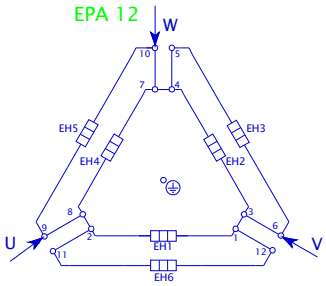


SCHEME OF TERMINAL BOARD CONNECTION

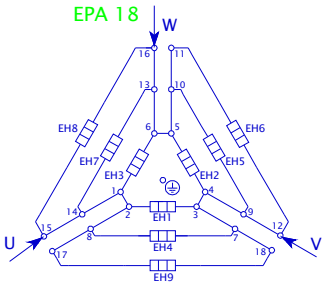
EPA 06



EPA 12



EPA 18



Dimensions of basic type EPA 06, EPA 12 and EPA 18 for pressure PN 63

VERSION	DN	PN	A	C	G	H	L	øP	øQ	R	S	α	V	V_1	Vmin	Vdem	Z
EPA 06 063 25 _ C	25	63	375	600	-	800	350	168	-	240	276	30°	1165	1175	400	880	215
EPA 06 063 50 _ C	50	63	375	600	-	800	400	168	-	240	276	30°	1165	1175	400	880	215
EPA 06 063 25 _ A	1"	63	375	600	-	800	400	168	-	240	276	30°	1165	1175	400	880	215
EPA 06 063 50 _ A	2"	63	375	600	-	800	450	168	-	240	276	30°	1165	1175	400	880	215
EPA 12 063 25 _ C	25	63	395	600	-	900	500	219	-	294	330	30°	1225	1295	400	880	240
EPA 12 063 50 _ C	50	63	395	600	-	900	500	219	-	294	330	30°	1225	1295	400	880	240
EPA 12 063 25 _ A	1"	63	395	600	-	950	500	219	-	294	330	30°	1225	1345	400	880	240
EPA 12 063 50 _ A	2"	63	395	600	-	950	500	219	-	294	330	30°	1225	1345	400	880	240
EPA 18 063 25 _ C	25	63	425	500	-	850	500	273	-	350	386	30°	1195	1275	400	880	270
EPA 18 063 50 _ C	50	63	425	500	-	850	500	273	-	350	386	30°	1195	1275	400	880	270
EPA 18 063 25 _ A	1"	63	425	500	-	850	500	273	-	350	386	30°	1195	1275	400	880	270
EPA 18 063 50 _ A	2"	63	425	500	-	850	500	273	-	350	386	30°	1195	1275	400	880	270

Dimensions of basic type EPA 06 and EPA 18 for pressure PN 100

VERSION	DN	PN	A	C	G	H	L	øP	øQ	R	S	α	V	V_1	Vmin	Vdem	Z
EPA 06 100 25 _ C	25	100	390	600	-	800	350	168	-	240	276	30°	1200	1190	400	880	215
EPA 06 100 25 _ A	1"	100	390	600	-	800	400	168	-	240	276	30°	1200	1190	400	880	215
EPA 18 100 25 _ C	25	100	460	500	600	900	500	273	380	-	-	30°	1250	1360	400	880	270
EPA 18 100 50 _ C	50	100	460	500	600	900	500	273	380	-	-	30°	1250	1360	400	880	270
EPA 18 100 25 _ A	1"	100	460	500	600	900	500	273	380	-	-	30°	1250	1360	400	880	270
EPA 18 100 50 _ A	2"	100	460	500	600	900	500	273	380	-	-	30°	1250	1360	400	880	270

Note: After " _ " comes the letter (A ÷ K) indicating the location of the inlet and outlet flange.
Detailed data about gas electric preheater EP are given i document TPN, can be sent on your request.